

and testing of the coil and/or its assembly/integration into personal electronic device **300**, but could occur at any time. To prevent this type of damage, it may be desired to provide some sort of mechanical reinforcement.

[0037] Such mechanical reinforcement may be provided by a spacer **751** as depicted in FIG. 7. Spacer **751** may be formed from any suitable non-metallic, non-conductive, or dielectric material, such as a plastic. Spacer **751** may be formed by any suitable process, such as injection molding. It may be desirable that **751** be non-metallic to prevent both electrical and magnetic interference with the operation of the coil assembly. Depending on the particulars of a given application, spacer **751** may be formed as a unitary structure or in multiple pieces. In the illustrated embodiment, spacer **751** includes additional components **752**, **754**, and **756** that may optionally be used to provide additional benefits. For example, components **752** and **754** may be formed with indentations on one face that conform to the exterior shape of the respective windings with which they interface, which may help to secure the entire assembly. Likewise lower component **756** may be configured with features for routing coil leads **758**. Although shown as separate components, such wire management features could also be formed into spacer **751** directly.

[0038] Additionally or alternatively, still other features may be formed into these components to achieve any of a variety of mechanical construction features or advantages. For example, spacer **751** may include one or more features, such as hole **753**, that allow for manufacturing machinery to handle the coil assembly without touching the coil or ferrite portions. Additionally, for multi-post core arrangements, such as the pot core/modified pot core design illustrated herein, spacer **751** may fill what would otherwise be a void between the two posts, thereby providing mechanical support for the cover glass, for example. In at least some embodiments it may be desirable to secure spacer **751** and optional additional components **752**, **756**, and **758** to each other and/or to the coil assembly. This may be done in a variety of fashions, including using an adhesive. For some applications a UV-cured adhesive may be appropriate.

[0039] The foregoing describes exemplary embodiments of personal electronic devices configured to provide wireless charging to an accessory. Such systems may be used in a variety of applications but may be particularly advantageous when used in conjunction with personal electronic devices such as notebook computers, tablet computers, smart phones and the like and their accessories, such as styluses, wireless earphones, and the like. Although numerous specific features and various embodiments have been described, it is to be understood that, unless otherwise noted as being mutually exclusive, the various features and embodiments may be combined various permutations in a particular implementation. Thus, the various embodiments described above are provided by way of illustration only and should not be constructed to limit the scope of the disclosure. Various modifications and changes can be made to the principles and embodiments herein without departing from the scope of the disclosure and without departing from the scope of the claims.

1. A personal electronic device configured to provide wireless charging to an accessory, the personal electronic device comprising:

an enclosure containing components of the personal electronic device, the enclosure including at least one

component defining a face of the enclosure, wherein at least a portion of the face is transparent to facilitate viewing of a display of the personal electronic device; and

a wireless charging assembly disposed within the enclosure and including a core having one or more windings disposed thereon and configured to generate a magnetic flux above the face to couple to the accessory, thereby providing power wirelessly to the accessory when the accessory is disposed at a predetermined location on the face of the enclosure.

2. The personal electronic device of claim 1 wherein the enclosure is defined by a top glass forming the face, a perimeter frame forming sides of the enclosure, and a back forming a surface opposite the face.

3. The personal electronic device of claim 2 wherein the perimeter frame is metallic.

4. The personal electronic device of claim 2 wherein the back is glass.

5. The personal electronic device of claim 1 wherein the core is a pot core or a modified pot core.

6. The personal electronic device of claim 5 wherein the one or more windings are disposed on one or more posts of the pot core.

7. The personal electronic device of claim 6 wherein the one or more windings comprise a winding having a first portion wound in a first direction about a first post of the pot core and a second portion wound in a second direction about a second post of the pot core.

8. The personal electronic device of claim 1 further comprising a metallic shield disposed about the wireless charging assembly.

9. The personal electronic device of claim 8 wherein the magnetic shield surrounds five sides of the wireless charging assembly.

10. The personal electronic device of claim 8 wherein the magnetic shield surrounds four sides of the wireless charging assembly.

11. The personal electronic device of claim 1 wherein the wireless charging assembly further comprises a spacer disposed between posts of the core and configured to provide mechanical reinforcement to the core.

12. The personal electronic device of claim 11 wherein the spacer is bonded to the core.

13. A wireless charging assembly configured to provide accessory charging in a personal electronic device, the wireless charging assembly comprising:

a core configured to be disposed below a display face of the personal electronic device;

one or more windings disposed on the core and configured to generate a magnetic flux above the display face, thereby providing power wirelessly to an accessory when the accessory is disposed at a predetermined location on the display face.

14. The wireless charging assembly of claim 13 wherein the core is a pot core or a modified pot core.

15. The wireless charging assembly of claim 14 wherein the one or more windings are disposed on one or more posts of the pot core.

16. The wireless charging assembly of claim 15 wherein the one or more windings comprise a winding having a first portion wound in a first direction about a first post of the pot core and a second portion wound in a second direction about a second post of the pot core.